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ABSTRACT

This study investigates computer-mediated communication (CMC) to facilitate the construction of a learning community of preservice teachers. The formation of a learning community involves students working together to solve ill-structured problems and applying knowledge and experience to heuristic teaching. "Peer learning" broadly includes cooperative and collaborative learning and involves learners working together to achieve specific learning goals. Research goals of this study include: (1) to understand how students made use of CMC to construct knowledge about a computer-supported learning environment; (2) to create a problem-based learning activity that helps students integrate the theories of a computer-supported learning environment into practical teaching; (3) to describe the role of the lecturer in the peer learning community; and (4) to find out the role of learners in on-line discussions between members of the peer learning community. Findings show that contemporary computer-mediated communication technology not only supports learning activities but also fosters the development of peer learning communities. (Author/KHR)

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Developing a Peer Learning Community through the use of CMC

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Abstract

This study investigated computer-mediated communication (CMC) to facilitate the construction of learning community. The formation of learning community, which involves students working together to solve ill-structured problems and putting applying knowledge and experience to heuristic teaching. "Peer Learning" broadly includes cooperative and collaborative learning, and which involves learners working together for achieving specific learning goals. We report on the building of a peer learning approach through the use of CMC enhances flexible learning and fosters initiative and interactivity of the learners towards their learning. The findings showed that the contemporary computer-mediated communication (CMC) technology not only supports learning activities, it fosters the development of peer learning community.

Introduction

The collaborative technologies as computer-mediated communication (CMC) were used to provide students with communication tools to engage in informal processes of knowledge sharing. The context of this study makes use of the Web-based learning and teaching platform as an effective means of instruction, which also provides learner-centred research evidence of peer learning. During the study, the students' communication capabilities of the online learning and teaching platform demonstrates a learning process that relied upon effective integration into an authentic community (i.e. the teaching environment). Learning processes that are "grounded in talk" can stimulate higher order thinking skills by providing a context and mechanism for explanation, justification and reason (Oliver 1997). Through these peer learning activities, learner interaction with lecturer(s) and other learners becomes essential if they can master the concepts and skills associated with their profession.

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Background of study

This study is based at the Hong Kong Institute of Education, a tertiary teacher education institution located in Tai Po in the New Territories. The institute offers a range of Bachelor of Education and Graduate Diploma qualifications. Within the Hong Kong Institute of Education, there is always a common opinion that students left the Institute with feelings of being under-prepared for the classroom life and confused about what issues would confronted them when they took up full-time teaching positions (HKIED 2002). This situation existed because most teacher education courses present a fragmented view of learning that is based upon a traditional model of lectures and tutorials that are often not related to each other. Subjects are presented in isolation and assessment is often individualistic and examination based. Hoban (1999) claims that this fragmented approach to leaning hinders the development and professional socialization of pre-service teachers. Some academics believe that technology is useful only for information transmission, they assert that technology cannot replace human contact as in conventional classroom, and that there is a real possibility that students will be overloaded with reading materials and database links supported by the network (Jung 2000).

In this study, instead of giving traditional lectures, a peer learning strategy was adopted and students became actively involved in peer assessment and collaborative learning activities through CMC. The study provides another perspective on the use of a virtual learning community approach to enhance flexibility, connectivity, interactivity and initiative of the learners giving them the opportunity to engage their IT knowledge in practical teaching situations.

Methods of communication that support Peer Learning

A web-based learning and teaching platform was used to support learning community discussion. This allowed for individual discussion, inter-group, and intra-group discussion as well as lecturer input. Students could access the forum either from home, or anywhere that has computer online to the Internet.

In order to enhance the learning community atmosphere, each team conducted a learning meeting for all the activities (i.e. presentation and try-out). These learning meetings were held for an hour per presentation team every week during the teaching session.

Theoretical Framework

Jean Piaget claimed that for most individuals cognition developed through recognizable stages. When individuals cooperate in a learning environment, socio-

cognitive conflict may occur and this creates cognitive disequilibrium, which in turn can stimulate cognitive development. Thus cooperative learning can be thought as a process that can facilitate a student's intellectual development by forcing him/her to reach consensus with other students who may hold opposing viewpoints about responses to a learning task (Johnson and Johnson 1999). In other words, cooperation among peers is considered to be important for the development of a critical attitude of mind, objectivity and discursive reflection. (McCormick & Pressley 1997)

Vygotsky claimed that human mental functions and accomplishments have their origins in our social relationships. (Johnson and Johnson 1999) Central to his theory is the idea of the 'zone of proximal development', it is a zone between what a student can do on his or her own and what the student can achieve under the guidance of instructors or in collaboration with more capable peers. In this sense, if students work cooperatively, they are likely to grow intellectually.

Furthermore, CMC can supplement face-to-face teaching by providing discussion forums that are non-threatening and allow for learner control of communications and learner involvement in topic negotiation. CMC tools allow individuals to maintain links with their community of practice and to take advantage of the scaffolding provided by a dynamic social context. Such links are not limited by the constraints of time and space and allow for legitimate peripheral participation (Lave 1991).

Purpose & Significance of the Study

The purpose of the study was to report on pre-service teacher perceptions based on their initial use of virtual learning community approach designed to enhance **flexibility in learning**, and **connectivity and interactivity of peer learning community**.

It is also hypothesized that pre-service teachers who actively participate in peer learning, may have a better knowledge of the use of CMC in education. Further, they may have the ability to apply skills and competencies to other learning contexts, increasing their confidence as on-line learners. As Metheney (1997) claim peer tutoring also facilitates the development of desirable generic skills such as interpersonal and communication skills.

The current study is significant because it contributes to the understanding of how the students used the available CMC to support a learning community of peers.

Building a Learning Community through CMC

Thirty four pre-service teachers enrolled in one of the author's classes, were

provided with opportunities to conduct an in-depth exploration of different learning theories underpinning the design of computer-supported learning systems that might impact upon the learning of pupils. All thirty four pre-service teachers were studying IT as a minor. At the beginning of the module, the students were allowed to divide into 11 groups, which contained 3 to 4 members in each group.

The assessments in the module were predominantly collaborative and undertook all tasks in a group context. Within the study period, each team had to make a presentation around the question "the role of computer-supported learning environments in teaching and learning", and to report on the outcome of a teaching trial that integrated a computer supported learning environment into their own teaching. After every presentation, both teams had to post a critical question to the online learning platform, and the students in the whole class were welcomed to share their views. Apart from this, the members of the presentation teams would also be granted the moderator right to facilitate discussion. During the module, pre-service teachers were allocated to different primary schools for teaching practice. Before they began teaching practice, a questionnaire was put on the web and emailed to each participant, asking their views on peer assessment and collaborative learning during this module. After completing the practicum, they were requested to hand in a final assignment reporting on their knowledge of the computer supported learning environments used and their reflections on practice teaching.

Research goals

- ⇨ To understand how the students made use of CMC to construct knowledge about "computer-supported learning environment";
- ⇨ To create a problem-based learning activity that helped students integrate the theories of "computer-supported learning environment" into practical teaching;
- ⇨ To describe the role of the lecturer in the peer learning community and
- ⇨ To find out the role of the learners play in mediating on-line discussion among members of the peer learning community.

Student Perceptions of the New Learning Community

A questionnaire was designed to gain an indication of how the on-line environment was perceived and whether students felt that it contributed to the building of learning community.

Students were asked to respond to 10 statements related to their opinions on group work in the learning process and their perceptions on peers as evaluators. The research questions can be organized into 3 categories (flexibility in learning,

connectivity and interactivity of the learning community, transferability of skill developed). Responses were rated on a five point scale ranging from 1=strongly disagreed to 5=strongly agreed, and the students were also requested to rank statements order of importance. Results of a statistical breakdown of all student responses are shown as follow.

Research Questions	Rank	Mean
Flexibility in learning		
The on-line presentation helps my learning of the module	2	3.9
Meeting with the lecturer helps my learning of the module	3	3.3
Connectivity and Interactivity of learning community		
Peer Cooperative Learning Activities facilitates my learning of the module	1	4.1
Peer Assessments improved my knowledge of the module	4	3.7
Listening to peer presentations helped my learning of the module knowledge	5	3.8
Lecturer feedback strengthens my knowledge of the module	6	3.5
Team discussions in class consolidate the learning of the module	7	3.9
Transferable Skill / Employability [1]		
Peer learning is a teaching strategy which gives me confidence to learn		3.4
I like involvement in peer learning		3.8
I would like to involve my students in peer learning		3.8

The ranking of importance shows that the combination lecturer input, peer cooperation, on-line presentation of materials all contributed to student learning and that a combination of these is essential for the design of an effective on-line learning module. The CMC component provided a chance of flexible learning and claimed that it improved the level and quality of their learning as they used the asynchronous discussion space to share of ideas. The statistics showed that, even when on practice teaching outside the Institute, 43.7% of students had taken part in the communication area, while 32.1% browsed content section.

The result showed that the CMC component may have helped students to experience meaningful collaborative learning activities on-line. The results when combined

[1] *These are the self reflective statements, so students were not ask to rank the priorities*

with other data suggest that group activities could be supported and the students became more involved, developed teamwork skills and also acquired problem-solving skills. *"(Participation in the online learning platform) gives me an experiential exercise on the use of CMC", "I learnt more different perspectives from other students of different major, it's fantastic.", "I learnt to speak up and resolve conflicts in a group."* These statements appear to indicate that the students gained confidence and may transferable skills learnt in other contexts.

Conclusion

This study is a pilot for a much more extensive study. The students faced cooperative learning and peer assessment for the first time and it was inevitable that they would feel somewhat uncomfortable. Also it is understandable that students valued the role of the lecturer(s) in mediating the on-line discussion and without enough confidence to assess other peers.

However, the findings suggest that CMC was a stimulus for the development of a learning community that met in many different ways, e.g. small groups, face-to-face meetings (formal and informal), large face-to-face groups (formal meetings at university) and numerous telephone conversations (informal). Also during the study a learning community was initiated from the first day of the module and this appears to be an important factor. Much of this was due to the organization of team building, presentations and try-out activities that engaged students in learning experiences that allowed them to learn to work effectively with each other in small groups.

The study began the development of a 'knowledge building community' whose purpose was to develop some of the basic skills needed to work in small groups and to investigate problems through the transmission of values, norms, and habitual ways of seeing which belong to particular occupations (in this case teachers) and shape the way that people conduct their work and establish themselves in the larger social world (Bereiter 1993).

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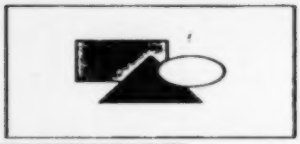

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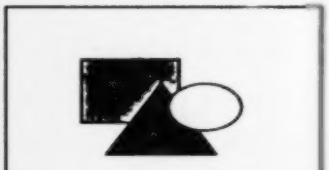		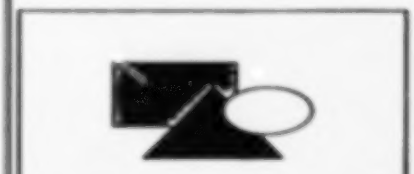
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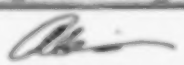
Signature: 	Printed Name/Position/Title: LECTURER	
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